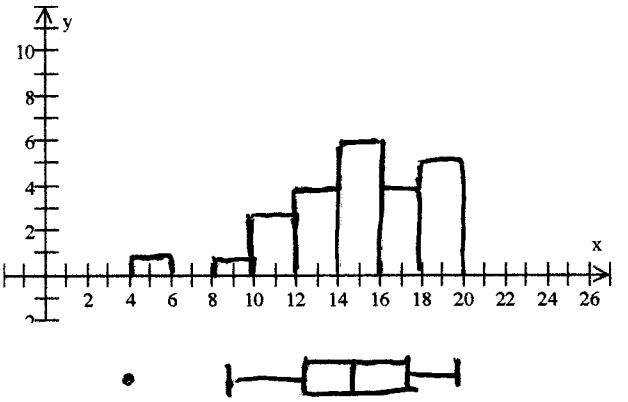
AP Stat- Ch. 5
Boxplot Exploration

NAME: Key

- Get lists BLK1, BLK2, BLK3
- These are the quiz scores for three classes. Quizzes were out of 20 points.
- For each class draw the histogram and find the summary statistics.

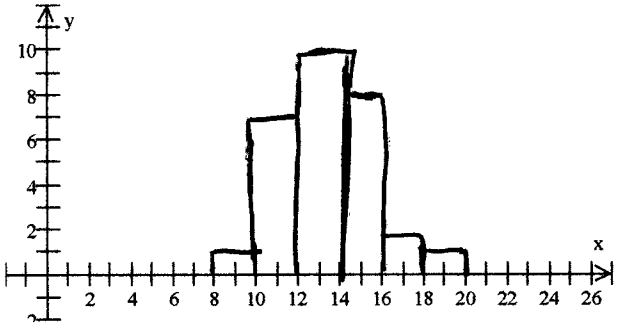
Block 1:



$min =$ 4
$Q_1 =$ 12.5
$med =$ 15
$Q_3 =$ 17.5
$max =$ 20
$IQR =$ 5

$\bar{y} =$ 14.48
$s =$ 3.676
range = 11 + outli

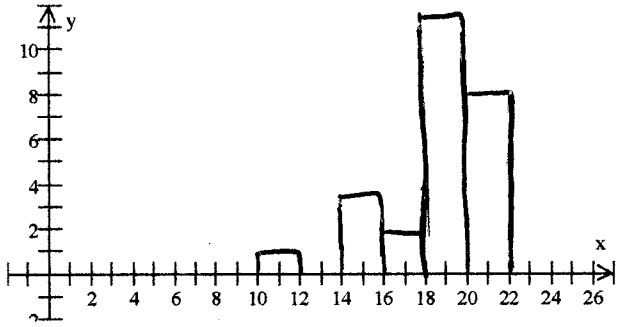
Block 2:

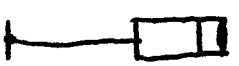


$min =$ 8
$Q_1 =$ 11
$med =$ 13
$Q_3 =$ 14.5
$max =$ 18
$IQR =$ 3.5

$\bar{y} =$ 12.93
$s =$ 2.154
range = 10

Block 3:





$min =$ 10
$Q_1 =$ 16
$med =$ 19
$Q_3 =$ 20
$max =$ 20
$IQR =$ 4

$\bar{y} =$ 17.923
$s =$ 2.481
range = 10

BOXPLOTS

Underneath each histogram draw the boxplot for the data.

Answer each of the following questions:

1. What kind of shape does Block 1's distribution have? How can you recognize this from the boxplot?

left skew

outlier & longer left whisker

2. What kind of shape does Block 2's distribution have? How can you recognize this from the boxplot?

symmetric

each part ⊢) or [] or [] or —| are similar length.

3. What kind of shape does Block 3's distribution have? How can you recognize this from the boxplot?

left skew

long left whisker

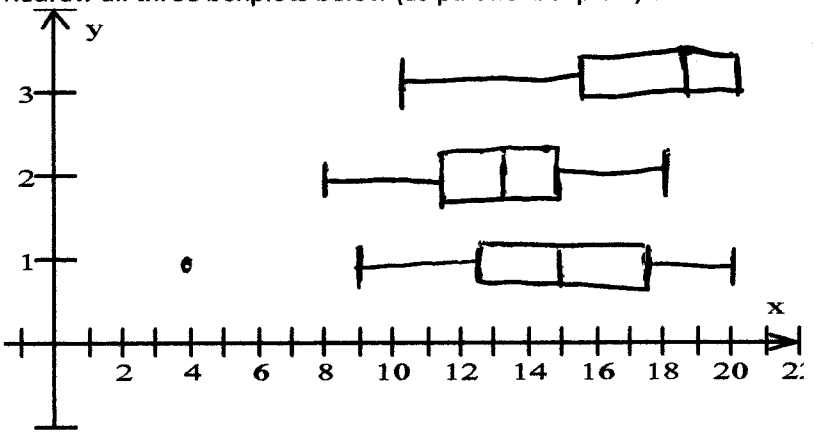
4. What is unusual about the boxplot for Block 3? Why is that occurring?

Q_3 and max are same

5. For each boxplot find the upper and lower fences. Draw those boundaries in each graph. Are there any outliers?

yes in Block 1

Redraw all three boxplots below (as parallel boxplots, on the same scale)



Answer the following questions:

1. Which class had the highest score? Both Block 1 & 3
2. Which class had the lowest score? Block 1
3. Ignoring the one outlier which class had the lowest score? Block 2
4. Which class did the worst? How can you tell?
   Block 2
5. Which class did the best? How can you tell?
   Block 3
6. Which class had the most consistent scores? How can you tell?
   Block 2 & 3 - lowest ranges & IQR
7. Which class had the most variable scores? How can you tell?
   Block 1 - largest range & IQR
8. The teacher finds a quiz without a name and it has a score of 19. In which class would this quiz most likely belong too? Would it be an unusual score in any of the classes?
   Block 3 ; yes, Block 2
9. Which pair of summary statistics (mean and std.dev. or Median and 5# summary) would best be used in describing the distribution for
   a. Block 1? median & 5 # summary
   b. Block 2? $\bar{x}$ and s
   c. Block 3? median + 5 # summary
10. Describe and Compare Blocks 2 and 3.